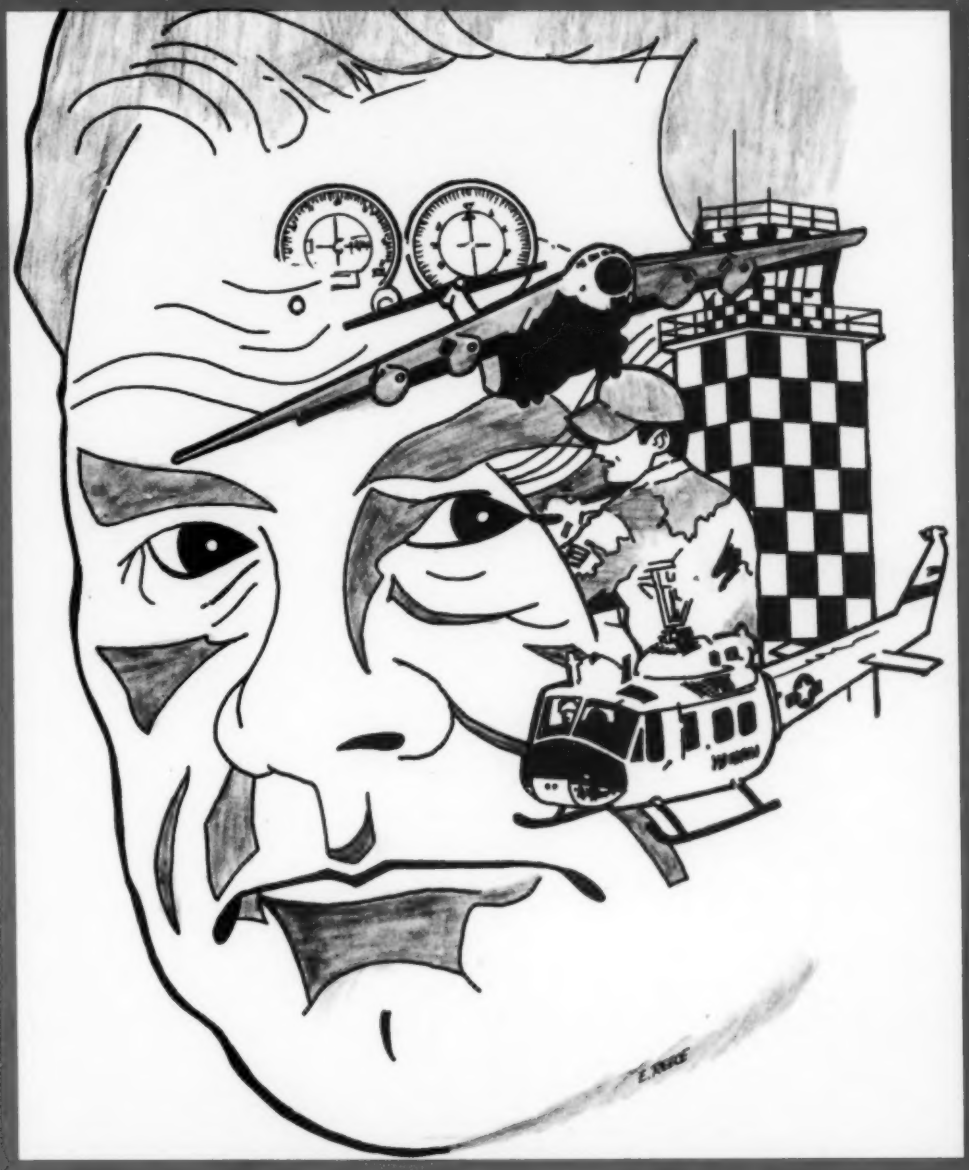
The MAC Flyer

MAY 1975



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For Greater Efficiency
in MAC Air Operations

MAY 1975 MAC RP 127-5 VOL XXII, NO. 5

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Three-Bar VASI

Spotting three rows of VASI lights at decision height need not cause concern — if you know exactly what they are saying.

by Capt Russell M. Masters, Jr.
4600 Ops Sq (ADC)
Peterson Field, Colo.

There you are at 300 feet with three of them coming at you ... Migs? ACT aggressors? No, this time it's Visual Approach Slope Indicator (VASI) light bars! Although designed to be "friendlies" they could be as disconcerting as an enemy bogie if you just broke out at minimums at night and the presentation is new to you. That's essentially the situation I faced a few months ago at Peterson Field, Colorado.

To the pilot who hasn't had the opportunity to bone up on the new system, that initial view of a three-bar VASI can tend to create a momentary mental panic in the cockpit. What is commonly referred to as a "critical phase of flight" could become a dangerous phase in short order.

Fortunately, in addition to all of our excellent formal training and publications, we enjoy the benefit of vicarious experiences through magazine articles such as this. Such "hand flying" sessions serve to lend personal credence to tech order knowledge and to spread the techniques of

VASI

professionalism in our field. They may even, I suspect, save an aircraft and/or crew member's life from time to time. With that personal philosophy in mind, I share the following information about the new three-bar VASI system with you as a supplement to chapter 18, AFM 51-37.

System Structure

Typical light bar placement for the new three-bar VASI is the same as the standard system with an additional upwind (far) bar. This added bar is set at a distance equal to that between the standard upwind and downwind bars (see figure 1). The new system has a minimum of six light units in each bar. This is an increased requirement for visibility, since standard VASIs may have as few as two light units per bar.

While the standard system provides a single 1° wide visual glide slope "tunnel" to the runway (usually a 2½° glide angle ± ½°), the three-bar VASI provides an additional visual tunnel. The center of this second tunnel is a glide angle which is set ½° above the standard glide slope.

Touchdown Comparisons

Figure 2 shows the basic reasoning underlying the creation of an additional, steeper glide slope. As implied in the diagram, the advent of the long-bodied jets (C-5, 747, DC-10) was the impetus behind the new system's development.

Remember that VASI is visual glide slope. "On glide path" means that this visual angle di-

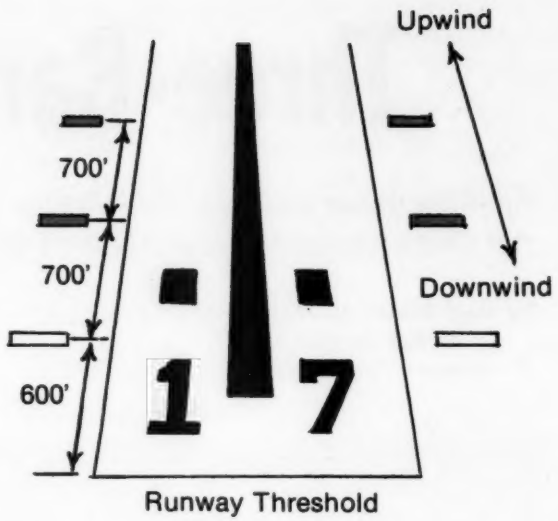


Figure 1

sects the aircraft windscreen. In a conventional-size aircraft (e.g., F-106) this means the main gear extends only a few feet below and behind that visual path flown by the pilot. For a long-bodied aircraft, however, the relative gear displacement becomes significant.

Depending upon the particular final approach angle of attack required, the vertical displacement between a C-5 pilot's vantage point and his rearmost main gear is a range of 48 to 60 feet. The lateral displacement is approximately 100 feet. As figure 2 depicts, the C-5's main gear may have already contacted ground level when the pilot is crossing the threshold on the standard visual glide path. Actual tests conducted by MAC C-5 pilots confirm this "diagram theory." The first two operational experiments resulted in a main gear touchdown almost 1,000 feet prior to the overrun!

Flying the New Light

The simplest technique of flying the new three-bar VASI for those of us in conventional-size aircraft is to merely disregard the additional upwind (far) bar. That is, fly the nearest two bars in the red-over-white visual pattern with which we're already familiar.

As a matter of understanding, recall that a red light bar is being underflown. The additional third bar will always be well underflown on our standard glide slope, and, thus, should appear red at all times to us. In case you get a chance some day to drive the "Heavies," (or if you're already flying them — Ed.) you'll overfly the first two bars (white) and underfly the third (red).

For those of you who, like me, are curious about flying the higher

glide slope in conventional-size aircraft, I'll save you an awkward approach. In the Sabreliner (T-39), I found the glide path to be uncomfortably steep even on a day VFR training approach. The flare is distorted, because you're breaking a slightly higher descent rate with power-on through the touchdown. The major problem, however, is that you've just cut your landing runway by the 2,000 feet you overflew. In slippery runway conditions, selecting the wrong visual glide slope could be a costly error.

Old Points to Ponder

Should you still have that moment of doubt the next time you break out of a weather deck, as I did that night, there are some cross-check clues that still remain true with the three-bar VASI system:

(1) The standard VASI glide slope will coincide with available precision instrument glide paths (ILS and PAR). It is interesting to note that some adjustments had to be made in this respect for the C-5. MAC's final approach radar controllers descend the big jets on a path above the standard PAR glide slope on their scopes.

Additionally, the C-5's ILS glide slope antenna had to be moved from the nose to the main gear wheel well area — the aircraft is, thus, flown just along the top of the ILS glide path as well.

(2) The higher minimums of non-precision approaches will usually place you above the standard VASI glide slope. If your first glance from the gages indicates you're on a VASI glide slope, confirm that you're not on the steeper of the two paths — a three-bar glide slope.

(3) The standard VASI glide slope will intersect the ground approximately 1,000 feet down the runway — you should land near the first set of fixed distance markers (the two familiar large white blocks used for VFR patterns).

Hopefully, those old familiar relationships, your instrument flying proficiency, and these notes will preclude that momentary mental confusion for you in your first encounter with three-bar VASI. The new system is, to be sure, a "friendly." But like a friend it must be known and understood before being trusted and respected.

— INTERCEPTOR

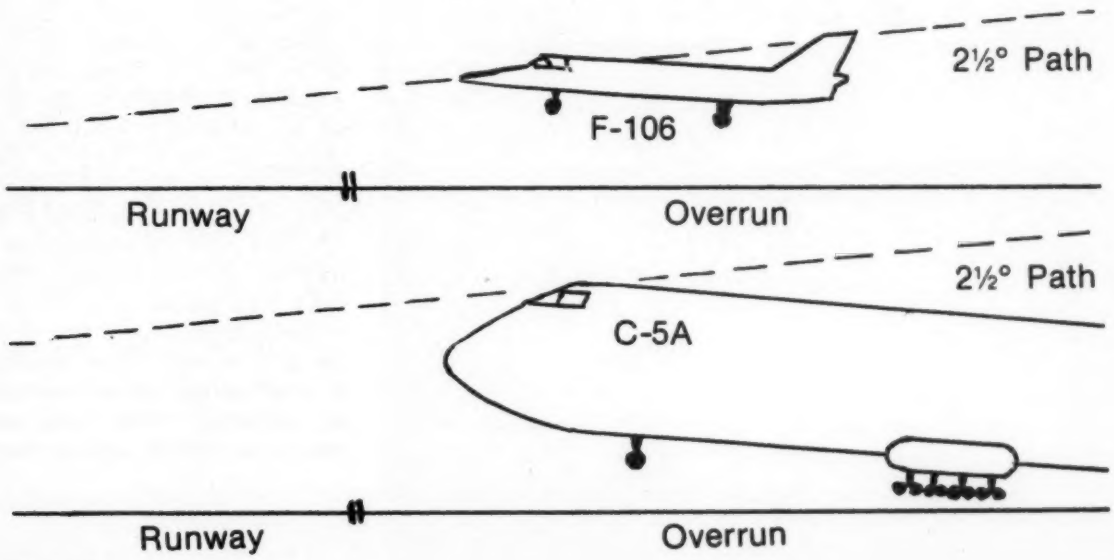


Figure 2

Learning how to cope with anxiety can help overcome that inadequate feeling. No one is a superman and realizing this can help you do your thing a lot better.

Psychology of Flight

by Dr. (Col) John R. Wiley, MC
Director, Base Medical Services
McGuire AFB, N. J.

Whenever a flyer climbs aboard his bird he faces the possibility of new, frightening experiences. The intensive training program he has completed helps him meet this challenge in an efficient manner. However, being human, he can't help but react emotionally. Whenever anyone undergoes new experiences, new frustrations, and new demands on his energies and talents, he tends to develop what medically is called anxiety.

Exactly what is anxiety? Simply stated, it is fear. It is fear of the unknown; it is fear that something is going to happen; it is fear that he cannot hack a given program.

Every one of us has a level of anxiety tolerance beyond which it is impossible to function. Our experiences as children and how we've learned to handle stressful experiences determine the level of our breaking point. If we experienced a lot of stress as children and learned by observing the wise actions of our parents or by trial and error (painful though it may be) to react in appropriate ways, then our stress tolerance is probably pretty high. On the other hand, if we were never exposed to much stress, or our methods of combating stress were immature or childish and we were

allowed to get away with this type of adaptation, then our reactions may be very inappropriate and we may have a very low breaking point or anxiety tolerance.

Who's Afraid?

Unfortunately, in the flying situation it is generally felt by the uninformed that fear has no place, that fear is something to be ashamed of. This forces many of us to deny that our fear exists. When we deny that we are afraid, we are forced to take other avenues for expression of this fear. These avenues are many. One is the "hail fellow" who is the world's greatest lover, toughest fighter, and invincible flyer. He so completely denies his concern over the risks in flying that he consciously believes he is indestructible. You and I have seen this type. Occasionally, one of these fellows decides he is superhuman and starts taking unnecessary risks. He is the pilot the flight surgeon would like to identify. Anxiety can also cause a myriad of illnesses such as headache, stomach pain, ulcers, and chronic diarrhea. Anxiety can even cause airsickness.

The most common way to control our anxiety is: First, recognize that it is there. Admit to yourself, "I am anxious." Second, accept the fact that it is exceptionally uncomfortable. Third, realize it will go away.

As people become used to a situation, they tend to suppress their anxiety. All of us have experienced this wonderful mechanism which the brain uses to ignore the presence of anxiety.

Ask for Help

The role of the flight surgeon in all this, of course, is to help you understand your anxieties. If you feel you are getting tense or if you have certain fears that you don't want to discuss with your fellow flyers, your flight commanders, or even your squadron commander, then your flight surgeon is the man to talk to. He's not going to sit there and say "Uh-huh, a nut," and ground you. He's going to sit down and assist you in understanding the what and why of your anxiety.

If you had an ulcer or a heart attack, which you would consider physical, you would most certainly want to come to the flight surgeon, and it wouldn't be an admission of weakness on your part. It would merely be asking for help where you feel outside help is needed. The flight surgeon looks upon anxiety in the same light. If an individual has not learned through his past experiences how to handle anxiety properly, then this too is a requirement for outside help which most logically comes from your "doc." He is there to help you to learn to recognize your anxiety, what in your particular case has caused the anxiety, and what you can do about it. He is there to help you become more comfortable, psychologically and physically, so that you can continue a successful flying career.

Everyone has anxiety and fear. It is normal. It is physiologic. Used properly it helps us to think fast and react quickly. And it is not an admission of weakness to see your flight surgeon about it. He may be able to show you more effective ways of coping with it.

ABOUT THE AUTHOR

Col Wiley graduated from the University of Colorado Medical School in 1957 and entered active duty at Westover AFB, Mass. He was board certified in 1964 following specialty training in aviation medicine and became Director, Aeromedical Services at Travis AFB, Calif. Dr. Wiley became Chief, Aeromedical Consultation Services at Tachikawa AB, Japan, in 1966. He has been a clinic commander for the last seven years.

MAC Safety

Congratulations to all units and personnel chosen to receive MAC safety awards for 1974. Flight safety winners were:

The MAC Trophy

Twenty-Second Air Force

MAC Distinguished Wing Flight Safety Award

39th Aerosp Resc & Recovy Wg, Eglin AFB

MAC Safety Officer of the Year

(Primary Duty)

Lt Col John B. Ferrata, Jr.

60th Mil Alft Wg

MAC Safety NCO of the Year

(Primary Duty)

SSgt Gerald Elefante

63d Mil Alft Wg

Award Winners

MAC Safety Officer of the Year
(Additional Duty)
1st Lt Loren J. Schroeder
Det 5, 39th ARRW

MAC Safety NCO of the Year
(Additional Duty)
MSgt Ray A. Aguilar
604th Mil Alft Spt Sq

MAC Flight Safety Achievement Award

39th Aerosp Resc & Recovy Wg, Eglin AFB
89th Mil Alft Wg, Andrews AFB
375th Aeromed Alft Wg, Scott AFB
436th Mil Alft Wg, Dover AFB
316th Tac Alft Wg, Langley AFB
60th Mil Alft Wg, Travis AFB
62d Mil Alft Wg, McChord AFB
63d Mil Alft Wg, Norton AFB
463d Tac Alft Wg, Dyess AFB
314th Tac Alft Wg, Little Rock AFB

MAC Support Safety Achievement Award

602d Mil Alft Spt Sq, Elmendorf AFB
603d Mil Alft Spt Sq, Kadena AB
611th Mil Alft Spt Sq, Osan AB
618th Mil Alft Spt Sq, U-Tapao Afld
TUSLOG Det 175, Incirlik, Turkey
627th Mil Alft Spt Sq, RAF Mildenhall

An HH-3 turns on final approach to a remote landing site. The pilot has planned to avoid terrain hazards by using a steep approach with low airspeed. After beginning descent, he sees he's going to overshoot. He eases in aft cyclic and reduces collective, attempting to salvage the approach. As the big chopper nears the correct descent angle, the pilot increases collective — but the rate of descent increases! The pilot applies more power but the helicopter goes down faster, almost falling. With full power on, the chopper smashes into the ground, short of the landing site.

There have been no equipment failures in this hypothetical accident. The helicopter and every system on it operated perfectly, right up to impact. Why was the pilot unable to stop the descent?

Insidious Onset

The answer lies in one of the most insidious and least understood hazards of helicopter flying — "Power Settling." This condition is almost always the result of poor pilot technique. If rapid corrective action is not taken, the situation will deteriorate until corrective action is impossible. To fully understand the problem, let's dissect the condition.

Power settling is a condition of flight in which air displaced by the rotor system recirculates in a toroidal (donut) shape. In effect, the transfer of air from beneath the rotor system, around the edge of the tip path plane and back through the rotor disc, is analogous to a helicopter flying safely in a vast container — but the container may be falling at a fatal velocity. The helicopter is no longer entering a body of "fresh" air each second, but is flying (or falling) through its own downwash. As the situation deteriorates, the airflow develops a periodicity (oscillation) which demonstrates the instability of the condition and often produces control difficulties nearly impossible to overcome. Few pilots have ever survived power settling developed to this point so this instability is a conclusion resulting from wind tunnel observations.

Pilot Induced Errors

In order to establish a power settling condition, the pilot must make a number of coincidental mistakes. Even training units which demonstrate this situation at a safe altitude often find it difficult to achieve power settling deliberately. The helicopter must be at a low power setting, low airspeed, and high rate of descent (essentially, a steep descent with low power). Once established under these conditions the toroidal pattern may develop if power is applied, thus producing an increase in rate of descent as power is added. Should power be increased to maximum, with all else maintained constant, the settling will mature into an uncontrollable, high rate of descent — nearly a fall — and end in impact with the ground.

Oddly enough power settling itself is independent of weight. Because of the manner in which heavy gross weights affect pilot performance, there is a higher statistical incidence of power settling when the aircraft is heavy, but this is due to pilot factor, not to the effect of the weight on the settling condition.

Removing the Leg

Once power settling is developed, the pilot should be able to recognize impending disaster, since adding power only increases rate of descent by increasing the size of the disturbed air mass. Distance from the ground permitting, the pilot can recover by removing the "leg" upon which power settling stands. If airspeed is increased, power settling will disappear as induced flow replaces recirculation flow. If insufficient altitude remains and

there is no place to turn, then power settling will end with impact. Since no physical evidence of power settling will be discovered, it's unlikely that the term will appear in the accident report as more than a possible factor.

The greatest tragedy is that power settling generally isn't apparent until too late, since it occurs on an approach which has been botched and on which a salvage attempt is in progress. Most helicopters fly three types of approaches: shallow, normal, or steep. The choice is up to the pilot and normally depends upon obstacles and degree of precision necessary. If either is chosen and flown properly, the conditions requisite to the development of power settling cannot be established. Remember, initially, power settling requires low power, low airspeed, and high rate of descent. A properly flown steep approach requires more airspeed than the max for power settling. In any, the rate of descent should never be permitted to build to the minimum for power settling.

hat old nemesis – power settling – one of
that can gobble you up at the bottom
hastily flown approach.

Sinking Feeling

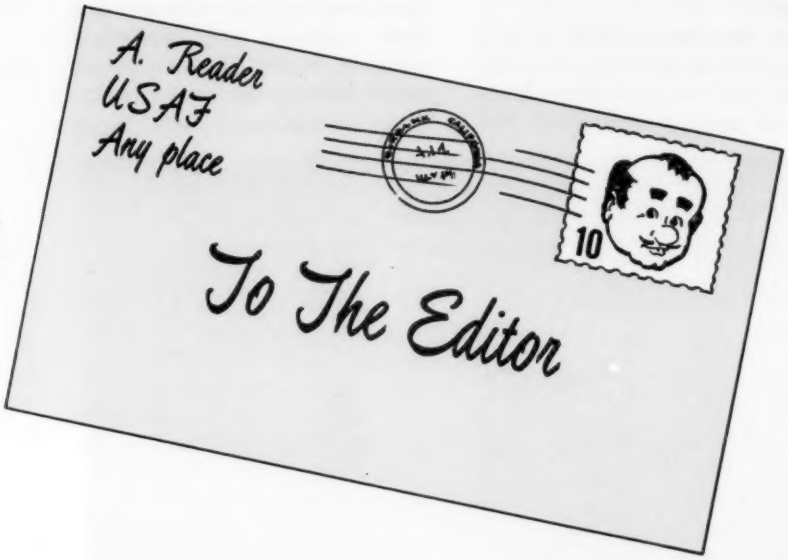
Sloppy Approaches

Then how does it happen? The pilot flying a steep approach might detect an overshoot while on the glideslope. In his attempt to get back to the desired flight path he may decrease power, increasing his rate of descent to a point where power settling can develop (his airspeed is already low). On a shallow approach, when airspeed is not bled off gradually, a sudden flare and recovery might put the aircraft in a condition where airspeed and power are both low and rate of descent has increased substantially.

In both situations, it should be noted that the approach, though bad, didn't become dangerous (conducive to power settling) until the pilot decided to salvage it. The moral: If it isn't going well, *go around.*

Power settling is not a common phenomenon, but is a potential hazard to the operation of most helicopters. Like many of the inherent hazards of flight, it poses no threat when met with understanding, good technique, and sound judgment. Avoidance is the first and strongest line of defense. But if the time ever comes when you discover added power only increases your rate of descent, prompt recognition and corrective action can still save the day. Remember what it is and what to do about power settling.

Letters To The Editor



A Juggling Act

To satisfy requirements of AFR 127-101, T.O. IC-141A-2-2CL-1, and local directives, each tow team supervisor at this base must carry and use the following articles whenever engaged in the towing of a C-141-type aircraft during the hours of darkness: two wands, one flashlight, one checklist, one portable radio, one whistle, and one aircraft interphone extension cord and headset.

During a towing operation, with one wand in the supervisor's left hand, the other wand in his right hand, and the whistle in his mouth, the interphone cord and headset tied around his neck, the flashlight stuck in his left ear, and the portable radio under his right armpit, the towing of aircraft is simplified. But, trying to balance the towing checklist on top of his head is extremely difficult. Any suggestions?

TSgt Robert N. McNeill
62 MAW/OMS
McChord AFB WA 98438

★ Your description is mind-boggling! And your complaint was valid — until a few months ago. Since your letter was received the new AFR 127-101 and MAC-SUP 1 thereto have been distributed to the field. This negates the requirement for towing supervisors to utilize wands and aircraft interphone communications. MAC/LGM informs us that since the checklist is completed prior to the towing operation and the flashlight is only required for completing the checklist, the towing supervisor should be hands-free for the towing operation. Nontactical radios with headsets and voice actuated mikes (on radios that can be so equipped) are now required for primary means of communications during C-141 and C-5 towing operations. A Command Towing Workshop at MAC headquarters last year was partly responsible for the updating. Thanks for your letter and obvious concern for a situation that needed correcting. Now you and other tow team supervisors can officially stop your juggling act.

Seismological Impact?

Just a comment. I have no Richter scale to measure its seismological impact upon the ground,

Nor ability to tell of its safety consciousness, forever profound,

Nor weather machines or crystal balls, to predict success

Of a flight magazine of which I feel many are blessed.

And I reckon it ain't within the proper ethics of contention for me to even comment, appreciate, or mention

The MAC FLYER's artistry, creativity, or finest intentions.

Yet, haven't you ever just felt good to know something was around,

Wholesome, meaningful, and sound?

And haven't you ever just enjoyed reading something true, explicit, and clear,

Good advice tempered with humor, wit, and cheer?

To know of humanitarian messages, indelibly printed,

In hearts and minds, reliably minted.

Or revelated in sharp logic and organized skill,

Or enlighteningly fictitious but real.

Then perhaps you will understand why I reverberate, comment, and recall

An air-ground performance I felt was the finest and best of them all.

Your magazine.

Sandra Lowthrop
2485 Roxbury Ave.
San Bernardino, Calif.

★ Thank you. You've just wound C. R. Terror's clock for another year. Not to mention those of the editors.

Dah Dit, Dit Dah, On the Range

Working on the C-5 mission flight simulator navigation systems brings a nostalgia for the old, more dramatic ways of navigation. Remarkably, on the C-5 mission flight simulator, we also simulate low frequency aural null, A-N range twilight zone, and tell the computer the name of that star — along with the modern goodies.

Bernie Miron
Lockheed-Georgia Co.
Marietta, Ga.

★ For the benefit of some of our younger readers, the A-N range, or radio range, was an aural navigation and approach system which has been replaced by the ADF and VOR in the United States. There are still a few in some areas of the world, a thought that probably causes some degree of terror for pilots who have had to use the radio range in marginal weather. The following verse, comparing the old range to modern navigational methods, was penned by Mr. Miron, whom we thank for the contribution to this page, which is rapidly taking on the characteristics of a "poets'" corner.

GONE IS THE RANGE

Oh, how flying does change;
We don't home on the range,
And need not know the name of that star.
It's so easy and dull,
We don't fly aural null;
It's no problem to know where you are.

Gone, gone is the range,
With its bent beams and soft twilight zone,
In the headset were heard,
Crazy signals, absurd,
And I never could get to the cone.

Oh, how often at night,
With the pilot half tight,
And the "A" sounding just like an "N,"
After killing a keg,
We could not find the leg,
And we'd circle again and again.

Gone, gone is the range.
It's a new world of flying today.
Inertial doppler and more,
Computers keeping the score,
And a soft bunk for rest on the way.

Old SOFtie

This letter concerns the first segment of your "After Deadline" article in the Jan 75 issue of THE MAC FLYER.

The last sentence reads, "If you tend to question the value of the SOF's duties, just think about that for a few minutes." I have on occasion questioned the value of SOF duties and your article fails to allay my complaints.

The last chance inspection did prevent the departure of a sick aircraft. However, the SOF's role was passive in that his contribution consisted of driving the maintenance men to the aircraft. Does this support the value of the SOF's duties? Hardly. In fact, it illustrates one distasteful misuse of the SOF, the ever-present "driver with a vehicle," available to crews, command post and maintenance.

As a C-5 AC I consider the last chance inspection necessary (performed usually by the flight engineers, not maintenance personnel), and if the article's purpose was to illustrate the importance of this inspection, I haven't a gripe. However, citing this episode as a cogent argument to support the astray SOF program is a bit too much.

Roger E. Durand, Capt, USAF
3 MAS
Dover, Del.

★ If you mean that the SOF alone was not responsible for detecting this aircraft discrepancy, you are obviously right since there were two other persons involved. Our point was merely that the SOF's duties include visually checking departing aircraft as well as determining that certain required checks have been performed, a practice that has proven effective. Just how available this particular SOF made his vehicle to "crews, command post, and maintenance" personnel we are unable to determine. But let's face it, some of his primary duties, such as monitoring aircraft during their departure phase, are accomplished from the SOF vehicle. And if a SOF feels inclined to offer a crew member or other working personnel a ride during the course of performing his duties, does this really constitute a "distasteful misuse of the SOF"? Thanks for your interest in the article and the SOF program.

Teeter-Totter Landing Roll

The rule that says small errors may accumulate to form oversized incidents is demonstrated as a crew literally drags its tail on landing roll.

When is an empty fuel tank not an empty fuel tank? A crew found the answer to that riddle recently, but would just as soon they hadn't.

The crew was involved in a landing incident that resulted in heavy damage to the underside of their aircraft's tail section. Fortunately for them, the aircraft's undersection was the only thing damaged.

When the local training mission was launched, no one on the flight line had any idea that the final link in a chain of events that began with a write-up more than a month before was about to fall into place.

With a student pilot in the left seat and the instructor in the right, the aircraft was passing through 60 knots on a takeoff roll when it suddenly veered sharply left. The pilot kept the bird on the runway by using nose wheel steering and rudder and finally got it airborne. Meanwhile, approach control advised the pilot that tower had reported smoke boiling from the landing gear. The SOF, who had also watched the takeoff, pinpointed the source of smoke as the nose gear.

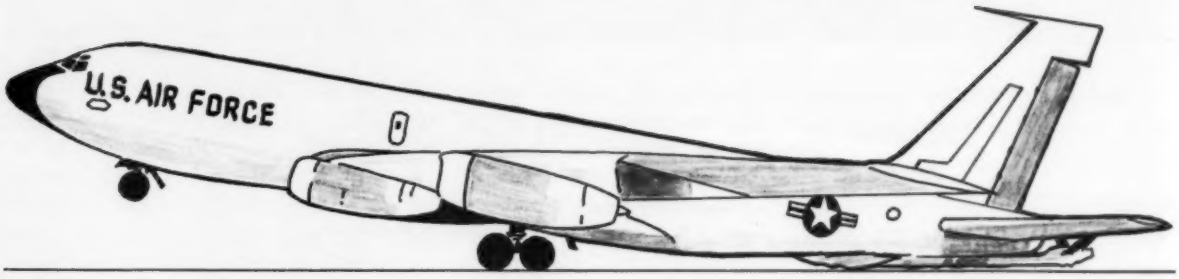
Suspecting a blown tire, the instructor pilot directed one of the crew members to visually inspect nose and main gear tires. No tire damage was detected. Several low altitude fly-bys were made for damage assessment, but neither the SOF nor anyone else could detect anything unusual.

As a precaution, the instructor initiated "landing with nose gear tire flat" procedures. This called for adjusting the center of gravity aft to a maximum of 35 percent. The crew selected a CG of 34 percent and adjusted to this by increasing fuel consumption from the forward fuselage tank. To doublecheck his CG computations, the instructor relayed aircraft fuel tank gage readings to his command post. Command post and crew CG computations were identical, and the IP received a green light to land.

Touching down, the IP held the nose off as long as possible. When the nose began to settle, he applied nose-down control and slowed the aircraft to taxi speed. Approximately 1,000 feet from the end of the runway, the aircraft unexpectedly settled on its tail. dragging and skipping the refueling boom nearly 400 feet before coming to a stop with its front office perched high in the air.

Without further examination, it would appear that the crew, in collaboration with the command post, had committed a real boner. But based on aircraft fuel tank quantity indications, crew and command post CG computations were correct.

Investigators concentrated on the perplexing question of how an aircraft with a computed in-limits CG could settle onto its tail. Checking into the aircraft forms, they found an open write-up indicating that the upper deck tank fuel quantity gage was inoperative. (The upper deck fuel tank is located directly below the vertical stabilizer on the KC-135 and can carry up to 12,100 pounds.) Suspecting more than just "slosh" fuel in this extreme aft tank, investigators ordered the tank drained. Their suspicions were



confirmed — nearly 9,300 pounds of fuel drained out of the tank.

Research of aircraft records revealed that the aircraft had been removed from off-station alert status over a month before for a leak in the upper deck fuel tank. The tank was defueled and dry-drained to permit flight to home station for repair. For over a week after return to home station maintenance crews removed, patched, and reinstalled the tank but did not perform a leak check. Although the aircraft was flown on two different missions following tank maintenance, no leak checks were performed. Between flights, maintenance discovered that the upper deck tank probe was inoperative and its quantity indicator pegged at zero. Following the two flights, the aircraft entered phase inspection and the tank was fueled, leak-checked, and signed off. No entry was entered in the forms indicating fuel servicing in the upper deck tank. The month ended and a new month began. Aircraft forms were purged and the only discrepancy carried forward was the inoperative fuel quantity gage.

An ORI came and the aircraft was generated as a backup. During the exercise, the aircraft's fuel loads ranged from a maximum of 150,000 pounds to 90,000 pounds. Fuel quantity in the upper deck tank during the exercise is unknown due to the inoperative fuel gage.

Ground and flight crews made no effort to ensure that the upper deck tank contained no fuel. Apparently, everyone concerned assumed that the tank was empty.

While troubleshooting a possible nose gear problem the crew, under the mistaken belief that the aft tank was empty, accomplished published fuel transfer procedures, unknowingly aggravating their precarious balance. Instead of shifting their CG aft to a desired 34 percent MAC, the CG shifted to an incredible 46.1 percent.

The smoke reported by the tower and the SOF was generated by nose gear tires scuffing on the runway. The excessive aft center of gravity placed little downward force on the nose gear. As the pilot made nose gear steering inputs, the tires skidded.

False assumptions regarding the fuel status of a critically located fuel tank might have caused this aircraft to enter a fatal flight regime. Contrary to command regulations, the NCO in charge who initially fueled the tank failed to record this information in the AFTO Form 781. But the blame and responsibility doesn't stop with this unfortunate individual. Following tank maintenance and throughout the ORI, no one took the time to check fuel quantity in the tank. Apparently, ground and flight crews simply assumed that the tank gage reflected the actual tank condition, even though the gage was written up as inoperative.

Directives of this command (and MAC) specify that when fuel quantity gages are inoperative, flight and ground crews will use alternate methods to determine fuel tank quantity.

Although this incident occurred in another command, its message is valid in MAC. Ignorance of job regs and directives, combined with faulty assumptions, are as lethal as a ticking explosive expertly planted in a gear well. It's just a matter of time.

Practice Makes Perfect

Distracted by his own verbage during an autorotation demonstration, the pilot forgot one important step.

After commencing collective pull during a practice power recovery autorotation, the pilot discovered he had not advanced the speed selector from the auto detent to the full-on position. A power-off autorotation was completed. The aircraft landed hard, causing structural damage to the airframe.

History of the Flight

The purpose of the flight was to familiarize and demonstrate various helicopter procedures to a prospective commanding officer of an icebreaker. The pilot in command was in the right seat and the icebreaker skipper in the left. The pilot demonstrated water landings, cargo sling operations, and a short oil pollution patrol.

The helicopter then returned to the home field for a power recovery autorotation demonstration and final landing. After briefing the passenger and alerting the crew, the pilot initiated a normal entry into an autorotation. During the maneuver, the pilot used his left hand to point to the Nf/Nr tach and to the engine instruments while he explained the meaning and significance of each. At 140 feet AGL, he flared 20 degrees nose up. Go-around was started at 20 KIAS and 60 to 70 feet AGL. Upon reaching the desired nose attitude, the pilot started to pull in collective. At about 10 to 20 feet AGL he realized he had not advanced the speed selector. Because of low altitude, the pilot elected to complete a power-off autorotation rather than chance advancing the speed selector. The collective had been raised to the approximate power-on hovering position before the oversight was discovered. It was raised very little more, if at all, before touchdown. Nose attitude on touchdown was three to five degrees nose up, with little forward speed and no sideward drift. The helicopter contacted the runway tail wheel first and travelled forward about ten feet before coming to rest. The tail wheel collapsed and energy absorption shock strut shear bolts were broken. The right sponson energy absorption shock lower attachment bolt sheared, allowing the sponson to collapse. The fuselage was extensively damaged around station 180 when it came to rest on the runway.

Analysis

The pilot stated that although he had completed hundreds of power-recovery autorotations (some as recent as the day before the accident) without incident, he could not recall ever having demonstrated one. He also stated that while in an autorotation he normally keeps his wrist "cocked" while in the auto detent which serves as a reminder to advance the speed selector. After pointing to the various instruments in this case, he returned his hand to the normal position instead of in the "cocked" position. It was concluded that the failure to advance the speed selector was a direct result of the distraction of pointing out various aspects of the autorotation to a non-aviator passenger. Notwithstanding the oversight of the speed selector, the autorotative landing should have been completed without damage. The Board concluded that the damage resulted from touchdown in a nose high attitude coupled with improper use of collective to cushion the landing.

Through a very well administered service-wide standardization program most accidents and incidents of this nature have been eliminated. Occasionally, however, for a multitude of reasons, a pilot will deviate from standard techniques. In this instance, the pilot was distracted from the task at hand by pointing out various aspects of the autorotation to the passenger. This distraction and deviation from the standardized techniques culminated in his failure to reapply engine power prior to the power recovery. Many "pilot factor" accidents over the years have occurred as a result of distraction. When a distraction is present, accident potential is also present.

U.S. Coast Guard Flight Safety Bulletin

Capt Stovel and Crew

GOOD SHOW

Left to right: Capt Frederick E. Stovel, aircraft commander; SSgt Patrick Y. Riggs, helicopter mechanic; and Capt Douglas G. Smith, copilot.

Capt Frederick E. Stovel and his HH-1H crew of the 304 ARRS (AFRES), Portland IAP, Ore., received a call to air evac little Travis McCrew, a critically ill, 16-day-old infant, from La Grande, Ore., to the University of Oregon Medical School Hospital. Captain Stovel; his copilot, Capt Douglas G. Smith; and the helicopter mechanic, SSgt Patrick Y. Riggs, readied their aircraft for flight and awaited the medical team which was to join them on the mission. A short while later, the team, consisting of Dr. Raul Banagali and nurse Joan Silbernagle, boarded the chopper with a portable incubator. The helicopter flew the team to La Grande hospital to pick up the baby. While the medical team prepared the infant for flight, Captain Stovel flew the chopper to nearby La Grande Airport to refuel.

Forty-five minutes later the Huey returned, and the doctor and nurse came on board carrying the baby in the incubator. It was dark as the helicopter lifted off on its leg to Portland. The first hour of flight went well and when the terrain permitted, the pilot descended to 2,500 feet and navigated along the Columbia River.

The flight was 21 miles east of the Portland airport when the master caution light and several segmented panel lights illuminated, the low r.p.m. audio signal sounded, and the r.p.m. warning light illuminated.

Then the engine failed. Captain Stovel entered autorotation and steered toward the beach along the river. As the helicopter descended, the crew got off a quick "mayday" to Portland Approach Control and notified the squadron operation section. Sergeant Riggs, to prevent injury to the child, positioned himself on the floor, and steadied the incubator with his feet. Captain Stovel flared the descending helicopter and eased it onto the shore for a slide-on landing. As the chopper slid along, it contacted a large rock, nosed over, and came to a stop on its side, partially submerged in the water.

All six occupants escaped unhurt, but another serious problem faced the survivors. How were they to keep the tiny baby warm with no electrical power for the incubator? It was a cold night and the infant could not survive for long in the cold.

The crew pulled a sleeping bag from the wreckage, and Nurse Silbernagle got into it with the baby. Her body heat kept the infant warm.

In a few minutes another 304th chopper was launched to recover the survivors. Later, all were pronounced in good condition by a physician.

The last word we have indicates little Travis McCrew is back home and doing fine.

This extraordinary mercy mission, which required prompt, expert responses by the crew to emergencies in flight and on the ground is one of which MAC, ARRS, and AFRES can justifiably be proud. "Good Show," Captain Stovel and crew!

Dust Off the Manual

A new change to the instrument manual could come any time now. But are you up on the not-so-latest change?

While AFM 51-37, "Instrument Flying," is the bible upon which Air Force pilots should base their instrument procedures, its changes and additions sometimes have a difficult time catching up with the rank and file aviator.

A year ago, in May 1974, Change Two was published and reached the field shortly afterward. It incorporated some meaty revisions in instrument flying procedures that, hopefully, have been well digested by now. But have

they? Are you up on the latest from a year ago?

As a rehash and a kind of mental quiz for our pilot readers, here's a brief discussion of some of the major differences in the now not-so-latest change. We'll start with the revisions that affect our day-to-day flying more directly.

Here They Are

Do you remember the changes regarding approach procedures? One of the most important was the "on course" restriction for descending out of a procedure turn on a low altitude approach, and out of penetration turn altitude on a high altitude approach. The old rule allowed a pilot to begin a descent from procedure turn altitude when his aircraft was within 10 degrees of the final approach course, and a descent from penetration turn altitude when the aircraft was within five degrees of the inbound course. Now, in both cases, the aircraft must be established on final course prior to descent. Why the change? One reason is that the old rule occasionally allowed for the compromise of terrain clearance criteria. The new "on course" rule assures terrain clearance buffers.

If you wonder just exactly what "on course" means, you are duplicating the question of many other pilots. The Air Force Instrument Flight Center considers an aircraft on course when, with the desired course selected, the CDI is centered or, with RMI only, the bearing pointer is aligned with the desired bearing. In short, on course means on course.

Procedures for radar vectors for nonprecision approaches (other than localizer) have been expanded. Do you recall at what distance from the final approach fix the air traffic controller should begin providing vectors to position the aircraft on a nonprecision final? And the maximum intercept angle at which this should be done? If you said one mile from the final approach fix and at an intercept angle of not more than 30 degrees, your memory is either good or you have been keeping right on top of your procedures — or both. However, a Chief of Staff message in March 1975 changed a portion of the radar vector altitude procedure. Now, rather than descending to the final approach altitude once approach clearance has been received, pilots must maintain the last assigned altitude until established on a segment of a published route or instrument approach procedure. Thereafter, published altitudes apply to descent within each succeeding route or approach segment.

In any case, if you have any doubts about the procedure, request assistance of Air Traffic Control. That's also required. The same rules apply when receiving vectors to an ILS or localizer only approach, except that the controller should position the aircraft on final approach course no closer than three miles from the final approach fix.

The circumstances under which a pilot may fly an instrument approach for an aircraft category different from that of his own aircraft were specified in Change Two. Pilots may now fly approaches using minima listed for higher aircraft categories when none is listed for their own aircraft category.

Holding Pattern

Changes in holding pattern procedures, although not as significant as some of the other changes, are of primary interest to the slow-moving aircraft. The new procedure changes the allowable bank angle in a holding pattern. It allows a maximum of 30 degrees and a minimum of 15 degrees (or a half standard rate turn, whichever is less) to compensate for wind. The old criterion allowed a minimum of 15 degrees, only.

Fifteen degrees of bank computes to a half standard rate turn at approximately 185 knots. Since many MAC jets and turboprops hold near or above 185 knots, 15 degrees will normally be the minimum bank angle, regardless of wind effect. But consider a C-7 Caribou holding at 125 knots with the pilot compensating for a hefty crosswind. At this holding speed, a half standard rate turn would require the pilot to shallow his bank to approximately 10 degrees.

But, remember, if there is no wind compensation, the old rule of always using 30 degrees of bank or a standard rate turn, whichever is less, still applies.

How are you doing so far? Pretty good? Could be that only some of you "nit-pickey" flight examiners are maxing the course so far. But let's proceed to some of the other changes.

Central Air Data Computer

The section on CADC equipment has been reworked for clarity and focuses on the conversion

of pitot static pressure inputs into extremely accurate electrical signals to the pilot's flight instruments. But there's a kicker to all this technological magic. Failure of certain components in CADC-supplied instruments can cause invalid instrument readouts without any cockpit warning indication (flag or light) that anything's wrong. Check your Dash One for specific guidance concerning such malfunctions on your aircraft.

AIMS Altimeter Displays

Many of the non-CADC-equipped aircraft in the MAC inventory — T-39s, Herky Birds, and helicopters — are being equipped with AIMS altimeters to enhance IFR capabilities and to assist Air Route Traffic Control with continuous altitude readouts. There is some valuable information in this section. During climbs and descents, for example, the 10,000 foot and 1,000-foot counters may hesitate or possibly hang up and then suddenly accelerate. This "pause and accelerate" behavior is normally more pronounced at high altitudes and high rates of ascent and descent. To help minimize this hestitation and dangerous hangup, altimeters are equipped with an internal vibrator that operates at all times except in the servoed mode. If the vibrator quits, the altimeter may hesitate or hang up at an intermediate altitude. Could be bad news.

By the way, do you know what the acronym AIMS stands for? Here's the drawnout version:

A — Air Traffic Control Radar Beacon System
I — Identification Friend or Foe
M — Mark XII Identification
S — System

Some Biggies

Another change which should be familiar to all pilots by now concerns low altitude procedure turns. Timing outbound begins abeam the procedure turn fix. Forget about the wings level timing rule except for holding pattern timing.

One of the more important additions is a paragraph on minimum safe and minimum sector altitudes. These altitudes are annotated in light blue on approach plates and provide obstacle clearance within 25 miles of the navigation facility identifying the final approach course (e.g., VORTAC, tacan, NDB, outer marker or middle marker) unless otherwise noted on the published procedure. Minimum safe and minimum sector altitudes provide a 1,000-foot obstruction clearance.

Prior to the latest change there were three instances when the portion of an approach prior to the final approach fix was not flown. These were: following an ATC straight-in clearance, when no procedure turn was required, and when on ATC vectors to final.

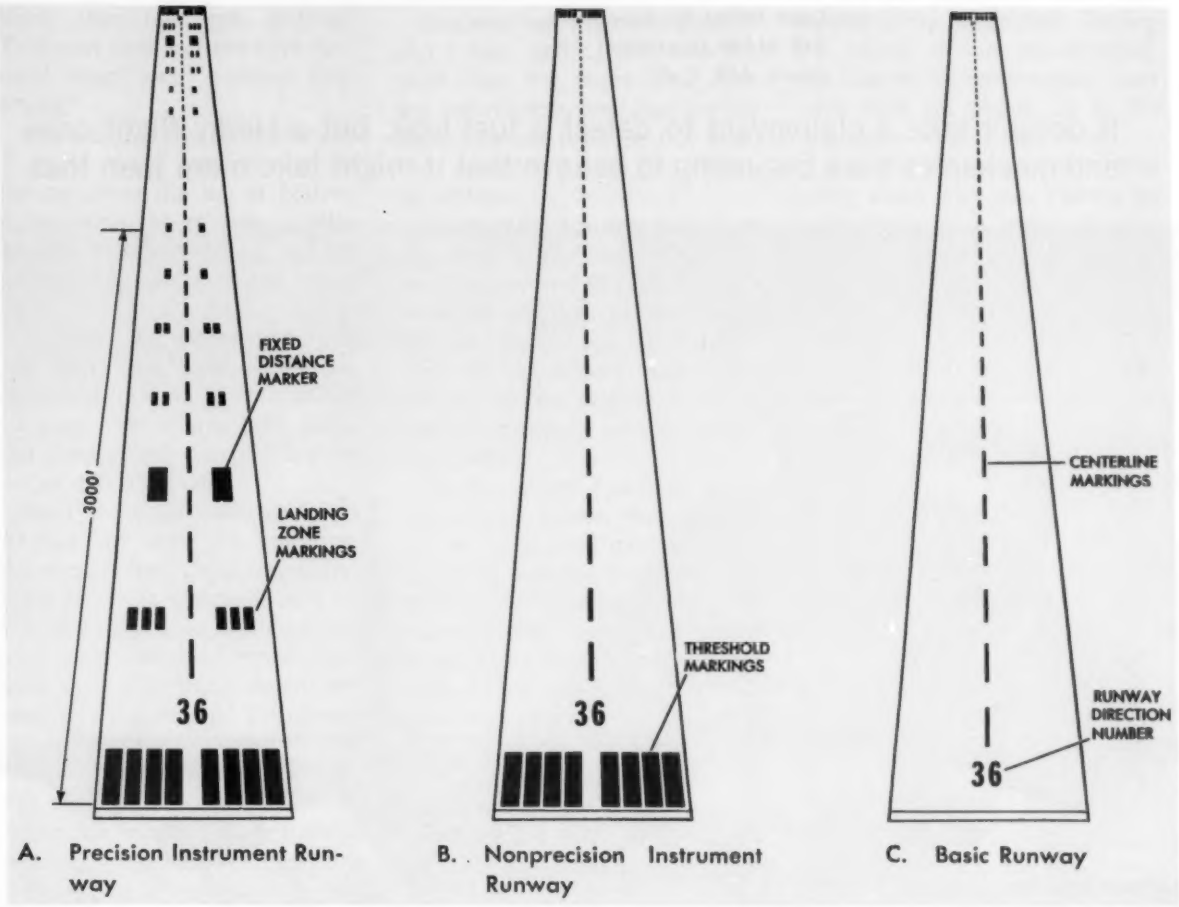
Now there are two additional instances when that portion of the approach is not required. First is when you're established in a published or assigned holding pattern, the inbound holding course is the same as the inbound procedure turn course, you're flying on the depicted side, and are subsequently cleared for an approach. Second is when you're established in a holding pattern (in lieu of a procedure turn). Once you're established in this pattern and approach clearance is received, you may press on with the approach. Flying an extra circuit back to the initial approach fix to commence the procedure turn is no longer required.

Another change is in high altitude procedure. Pilots must either proceed via the holding fix or request clearance direct to the initial approach fix after being cleared for an approach in which the holding fix is not collocated with the initial approach fix.

You've almost finished the review, but hang on! Don't quit yet. There are still a few remaining odds and ends you may not have detected the last time you read your manual.

(1) On a missed approach, if the climb gradient exceeds 150 feet per nautical mile, the approach chart will depict the vertical velocity required.

(2) Radar controllers must inform the pilot of the runway to which an ASR approach will be made, the ASR minimum descent altitude, and where descent to MDA will begin. Upon a pilot's request, an ASR radar controller will furnish recommended altitudes each mile on final approach down to the last mile. The controller will also provide course guidance and information each mile while the pilot is on final. The pilot will be instructed to report the runway in sight. Unless otherwise requested, the controller will continue approach guidance until the aircraft is over the missed approach point. If the pilot



A. Precision Instrument Runway

B. Nonprecision Instrument Runway

C. Basic Runway

Figure 1

does not report the "runway in sight," the controller will issue missed approach information.

Change Two addresses several changes in runway marker terminology and runway classification.

How a runway is marked should tell the pilot certain facts about the runway's intended use and the approach facilities serving it. Figure one depicts new labels assigned to various marking schemes. The following examples explain what they mean.

Example A: Precision instrument runway — served by precision approach facilities.

Example B: Nonprecision instument runway — served by straight-in, nonprecision approaches.

Example C: Basic runways — served by nonprecision approaches, but used for circling or other visual approaches.

These are only some of the changes in AFM 51-37. Were you familiar with all of them, or did you find a few strange new procedures? THE MAC FLYER is by no means a substitute for AFM 51-37, but simply presents this article as a kind of review of some changes that have already been in the field a year. If you weren't sure about some of the major changes listed, perhaps you should try a review of your own.

The Gas Ghost

by Capt Milton G. Schellhase
349 MAW (Associate)
Travis AFB, Calif.

It doesn't take a clairvoyant to detect a fuel leak, but a Herky flight crew and mechanics were beginning to believe that it might take more than that.

This is a story for aircrews, supervisors, and maintenance folks who believe in ghosts. Say you don't? Neither do I — not now. I'll tell you why.

It was one of those still, humid Thailand days that only someone who had lived there for awhile can fully appreciate. A most unlikely setting for a ghost, but let me continue.

The C-130 had just broken out of traffic and was soaring toward its assigned altitude. The flight engineer leisurely glanced out of the left window in a routine, ho-hum scanner check. One, two — everything okay on the left side. Three, fou — It looked like a contrail, but it couldn't be! Yet there it was: white mist trailing from number four engine. A fuel leak!

In less time than it takes to say, "Feather number four propeller," the big blade was standing at attention and the Herky Bird was right back in a closed pattern for landing.

On the ground there was the usual flap — fire trucks trailing along behind the taxiing bird, and people congregating around after it stopped. Wrench turners milled around in their baggy green pants and supervisors with rows of stripes on their arms seemed impatient for the props to stop turning so they could jump aboard and find out what

was wrong. Everyone was trying hard to get the mission off, but this was our only aircraft and at this stage things looked bad.

The crew seemed happy enough to have gotten the Herky back intact; they had one writeup: "Fuel mist coming from right outboard wing near number four engine."

But, much to the astonishment of us all, there was no sign of fuel on either the top or bottom of the wing. There was a little residual fuel on the flap, but we couldn't tell where it had come from.

To clear up the mystery, the line chief, crew chief, and assistants went to work. They checked the flap well, wings, tank caps, and pressurized the fuel system — but still no leaks.

Next, the engine shop got into the act. Off came the cowlings; the nacelle, tail pipe, and everything else was checked. Still no sign of a leak. Then the flight-line crew and engine technicians went over everything again and even ran the engine. Everything stayed as dry as a bone.

Again and again the tech order was checked. Nothing. Again and again the aircraft was checked. Nothing — except that by this time we all knew that the crew of his Hercules had been haunted by a gas ghost. We even checked with home station but nothing in the aircraft's history provided a clue. So, after a hell of a lot of ramp pounding we put the bird to bed. What a day!

The next morning we were renewing our search for the gas ghost when word came that operations wanted us to gas up the bird and send it back home.

"Wonder who's gonna volunteer to fly it," commented the maintenance superintendent, caustically. "Somebody who is suffering from get-home-itis?"

So, rather than take a chance on someone flying it on a mission, we decided to ask for a functional checkflight.

Ops was less than enthusiastic and I was getting the boo-hiss stuff from the flight crew. But the commander, who had arrived the day before, liked the FCF idea. That ended the boos and hisses for awhile.

It was still hot and humid as the Herky taxied out for takeoff. In a few minutes the aircraft was airborne. Up, up it went. Then, not too surprisingly, number four prop slowly wound down and stopped as the sick bird circled around again, just as she had the day before.

With number four feathered, the aircraft passed over the end of the runway and touched down. Suddenly, number three prop also feathered. The pilot made a long rollout without using reverse and in a few minutes our maintenance troops were swarming all over the fuel-dripping Herky-Turkey.

This time, we found the ghost. The top of the wing was soaked and the fuel had gushed down onto the flap. The crew said the fuel had started running inboard toward number three engine before the aircraft had begun turning back toward the field. And if number three prop hadn't been feathered after landing, the whole plane might have torched off.

Our ghost? Well, it turned out to be nothing more than a fuel tank cap on the top of the wing! It had been tightened all right, but a cut O-ring seal caused the leak. Our maintenance troops were kicking each other for not having checked the seals and caps, but ops was just thankful they hadn't launched it for home.

We all learned a few lessons from this one, our maintenance people, the operations folks — and probably even the crew. I talked with the commander later. To say the least, he was more than slightly interested. During the course of our conversation, the outside air temperature must have shot up about 10 to 20 degrees — or so it felt to me.

But there's one lesson that really stuck with me. There's no such thing as a ghost. Maintenance problems tend to take on very mysterious proportions at times, but there's usually a logical explanation for everything — if we look closely enough.

ABOUT THE AUTHOR

Capt Schellhase entered OTS in 1966. Following his commissioning, he attended aircraft maintenance officers school and was assigned to the 55 WRS, McClellan AFB, Calif. He was later assigned to the 54 WRS, Andersen AFB, Guam, and to a detachment of the 54th at Udorn RTAFB, Thailand. When the squadron consolidated maintenance activities with two other squadrons, Capt Schellhase became OIC of organizational maintenance. Returning to the CONUS, he attended maintenance staff officers school and became FMS supervisor of the 320 Bomb Wing, Mather AFB, Calif., and later commander of the Field Training Detachment. He left active duty in 1974 and is now assigned to the 349 MAW (Assoc), Travis AFB, Calif.

The Master Manipulator takes charge of a monthly flying safety meeting. It turns out to be a real nightmare.

C.R. TERROR

Ah, good morning, m'little chickadee. I'm here to see and assist the colonel on a rather sensitive mission," suavely announced the Lothario of Clandestine Activities.

"Of course, and you must be Major Terror," remarked the strikingly attractive secretary in the wing commander's front office.

C. R., always alert for romantic opportunities, attempted to calm himself and subdue his admiration for the well-endowed female seated before him.

"Ahem, ah, I don't believe I've had the pleasure of your acquaintance," beamed C. R., his eyes wide with delight. "Don't see how I could have overlooked such a credit to femininity. M'dear, I'm sure we can get together for lunch — a few terrorific 'tinis to soothe the palate and ease the strain of responsibility," prompted the Portly Pillar of Pilotdom.

Buzzzzzzz — buzzzzzzz. "Miz Taylor, send Major Terror in," crackled the wing commander's voice over the scratchy intercom.

"Well, m'dear, can't keep the colonel waiting. Since I've graced the airways in just about every kind of aircraft in the MAC inventory, he probably needs my aeronautical expertise," boasted the Master Manipulator, departing confidently.

"At ease, Major Terror. The reason I called you here is to help me with a problem," invited the colonel in a soothing tone.

Unaccustomed to such a conciliatory overture by a high ranking officer, C. R. stood somewhat shocked and mentally off balance.

"Wh- wh- why, I'm at your complete service, Sir. What can I possibly do to ease your burden of responsibility?" challenged the Captain of Curious Capers.

"My chief of flying safety, Major Chico, has been TDY for some time now and his assistant, Captain Buddy, entered the hos-

pital unexpectedly this morning for back surgery. The wing is having its monthly flying safety meeting a week from today. I want you to honcho the meeting and the Safety Shop until Major Chico returns," explained Colonel Bolt.

"But, sir, one of the younger officers in the wing could fill in quite easily. And it would be good experience. We field graders have greater responsibilities, and the rigors of command leave little time for anything else," persisted C. R.

"Major Terror, you've been flying for over twenty years, and I'm sure your chronicle of cockpit escapades would be of great interest to the wing. I'll be looking forward to your presentation next week. That'll be all for now," directed the commander.

* * *

Walking toward headquarters, Long Suffering Sam observed a familiar, portly silhouette approaching him. It was mumbling four-letter expletives. "Hey, boss, what's the matter? You look like you've been PCS'd to Shemya," expressed Sam sympathetically.

"May as well be, Sammy m'boy. Something worse has happened — a fate worse than being a co-pilot. Er, no offense, m'boy."

"What's that, boss?" continued Sam.

"A safety weenie. The wing safety shop is down for warm bodies and the commander directed MAC's Ablest Aviator to wet nurse the flying safety meeting next week. I'd like to know what I did to deserve this humiliating distinction. Must be part of the MAC harrassment program."

"You don't have to do it all, boss. Captain Buddy usually has three or four other people do most of the work for him. The flight surgeon, for example, can kill about 20 or 30 minutes, especially if it's Doctor Greenfield. Captain Cyrus Cirrus, MAC's crack meteorologist and a part-time mystic, can speak indefinitely once he gets wound up on seasonal weather briefings. Show a 15 or 20 minute flick and let the wing commander say a few words and, presto, you got a safety meeting completed," suggested C. R.'s right-hand man.

"Sammy, m'boy, there's definitely hope for you. I didn't think you were capable of such deep insight. One day you might be an aircraft commander, heh, heh. Without interrupting your unparalleled train of thought, Sammy, where would be an ideal location for such a festive occasion?" teased the Tamer of T-tails and Throttles.

"Boss, my next miniscule impulse suggests the Dandelion Room at the Club during lunch hour, from 1130 to 1330," sarcastically quipped Long Suffering Sam.

"Just wanted to make sure you hadn't mentally flamed out, m'boy. It's rather ironic that your sterling suggestions coincide exactly with my well-thought-out, detailed plans."

During the next few days, the Able Aeronaut reserved the Dandelion Room, contacted the weather officer and the flight surgeon, and made arrangements with the film library for projection equipment and a "landing illusion" flick. On the morning of the flying safety meeting, the Portly Pilot wheeled an Air Force station wagon to a screeching halt beneath the canopied entry of the Officers Club. Struggling with a cumbersome projector and screen, C. R. strained and staggered into the club's Dandelion Room and began to set up the room for the wing meeting.

"Lemmee see now. Projector will go here, screen over there, podium in front of the dining area. Got everything just about wired except for an extension cord. Bet the club custodian has got one hidden around here somewhere," mumbled the Merry Manipulator.

C. R. bolted out of the large dining room in search of the missing item. While he was away, an Officers Wives Club group converged upon the Dandelion Room for their weekly bridge engagement.

"Oh, Mrs. Stonewell, I think your outfit is adorable. What little hideaway boutique did you find it in?" gushed one of the women, eager to score a few points with the general's wife.

Before she could reply, another wife interrupted. "This is a marvelous setting, Mrs. Stonewell, and just imagine, a topical film before we play cards. You are so imaginative."

"A film! I beg your pardon, my dear," blustered the gray-haired matron.

"But, Mrs. Stonewell, there's movie equipment all set up."

Bouncing by the main bar en route to the Dandelion Room with the electrical cord, the Ace of Aerospace intermittently sang and whistled his favorite drinking song.

"Roll me over in the clover, lay me down, dum de dum, dum da de de dum. Whaaaaa, yeoooww. What the . . . gulp . . . . Excuse me, ladies, I must have the wrong room. Ah, er, I'm giving a briefing to the wing pilots in the Dandelion Room, heh, heh," defended the Dauntless Driver.

"This is the Dandelion Room and it's in use and will be in use for the next four hours, Major," announced Mrs. Stonewell.

"But, ma'am, the wing scheduled a flying safety meeting for this room and the wing commander is . . . ."

"Enough, Major. Does the name Stonewell mean anything to you?" barked the irked woman in charge.

"Ah, well, I know of a general by that name," replied C. R. nervously.

"Very good, major, I am related to the general. Now, get this junk out of here so we may continue," she commanded, authoritatively.

Again C. R. loaded up with the briefing gear and sought out the club manager.

"Major Terror, is there something wrong with the Dandelion Room?" asked the club manager.

"Yeah, that's a real hornet's nest in there and I need another room in a hurry," emphasized the Rotund One.

"All we got left is the Ratskeller downstairs. It's a little cramped and not too private," explained the manager.

"I'll take it. No time to debate the issue," blurted C. R., nearly tripping down the stairs.

* * *

"Greetings, m'lads. Welcome to the monthly wing flying safety meeting. Don't get any strange notions; I'm merely substituting for Major Chico and Captain Buddy for just this one meeting. First off, I'll summarize flying incidents since last month. Then Dr. Greenfield should be here for an enlightening medical discussion followed by Captain Cyrus Cirrus's seasonal weather briefing. Wrapping up this cozy little get-together will be a 15 or 20 minute flick on landing illusions," continued the Bandy-Legged Briefer.

At the far end of the narrow room, two WAF lieutenants suddenly entered from the club parking lot, unaware of what was going on.

"Oh, please excuse us, we didn't mean to interrupt," apologized one of the fair-haired beauties.

"Fear not, m'little chickadees, come right this way. I'll personally escort you both to the stairwell. I wouldn't want any of these lecherous airplane drivers to lead you astray," soothed the Pompous Pilot.

"Boooo . . . hissss. That ain't no illusion. Boooo . . . hisssss. Look who's talking," exploded male voices from the audience.

"Okay, okay, settle down you animals and cease and desist with the boooo-hisss stuff. Back to business. A few of you T-39 drivers keep insisting on blowing tires when the runway is wet. Well, when it's wet outside don't use the brakes . . . ."

C. R. continued offering pearls of wisdom and caveats to the sleepy audience. A long ten minutes later he began his summation.

"When around aircraft, do everything by the book and fly safe. I see that Doctor Greenfield hasn't arrived yet, so the wing's chief forecaster, Captain Cyrus Cirrus, will enlighten the aviation world on the mysteries of clouds and such," invited C. R.

"Hey, que pasa? This is your hippy dippy weather man with a three-month forecast for the

whole world. Pilots can expect to encounter severe clear conditions over Arizona, Saudi Arabia, and at fifty thousand feet. Throughout much of the United States, the sky condition will be marked by periods of intermittent daylight, with occasional light dark moving from the east coast, gradually spreading to the west coast. Chances for cloud formations occurring over Shiprock, New Mexico, will be approximately fifty percent. There will be gusty winds over Kansas and Oklahoma, rain and fog over the English Channel," rambled the crack meteorologist in a dreary monotone.

Twenty minutes later, Captain Cirrus concluded. "Transport pilots do it longer, but weathermen do it with crystal balls."

"Thank you, Captain Cirrus, ah, er, your weather presentation was most unusual, a virtual plethora of facts. We'll remember it well. Doctor Greenfield still hasn't arrived. Must be pushin' pills to hypochondriacs at the base hospital. We'll press on with the color film titled Landing Illusions," calmly added the Fat One.

With the room darkened, C. R. switched on the film projector. The screen suddenly came to life, and members of the audience instantaneously dropped off into deep slumber. But instead of the expected landing illusion flick, the screen told a different story; "Survival on a South Sea Island," highlighted by well-tanned, barechested, indigenous women, prancing about a verdant paradise, caged every open eyeball. Those who had decided to take a no-notice practice nap were catapulted back to reality by catcalls, lecherous laughter, and approving applause. Leaning toward the podium microphone, C. R. commented in a fiendish whisper, "Heh, heh, heh. Guess I got the wrong film canister. We'll just have to persevere through this er, documentary survival film. If there are any objections, I can terminate this first-rate run and let Doctor Greenfield lecture us on the hazards of drinking within fifty feet of an aircraft," slyly quipped the Aeronaut with Avoirdupois.

While C. R. and the audience mentally frolicked, the commotion in the Ratskeller gave cause for concern upstairs in the Dandelion Room.

"What in heaven's name is going on in this club? Excuse me, ladies, for a few minutes. I'm going to investigate this troublesome nonsense," blustered Mrs. Stonewell.

The general's wife collared the club manager and both descended silently into the suspected den of iniquity. From a darkened corner Mrs. Stonewell observed the colorful proceedings.

"Mister Huffy, alert the security police and the wing and base commanders immediately. I won't tolerate such a disgraceful exhibition of pornography in this club," directed Mrs. Stonewell.

Scarely a few minutes later, the Ratskeller erupted in a volley of white-hatted security police, colonels, shrieking whistles, sirens, and bright lights.

"Whhaaaaaa, yeeeeoooow. Stop the projector. Where's the stop switch. Mayday, mayday, help. I can't find the switch," cried C. R., banging the projector with his portly fist.

Punching the projection equipment over and over, C. R. yelled repeatedly, "I can't find the switch! I can't find the switch! I can't find the switch!"

Suddenly, the Idol of Airplanes bolted upright in his bed; everything was quiet except for the persistent ringing of the digital alarm clock. Thrusting aside sweat-soaked, emerald green, satin sheets, C. R. reached over and gently depressed the alarm silence button.

"Yikes, that's about the worst nightmare I've ever experienced. Wonder if the gods are trying to tell me somethin'. What day is it?" shuddered C. R., glancing at the calendar.

"Phew, still got three days before the wing safety meeting; plenty of time to get it together. I'll make sure guest speakers are lined up and properly prepared, and films and equipment are in order; think I'll even make arrangements to schedule the meeting in the base theater."

Quick Stoppers

Cable Jumps Pulley

Here's a case of a C-130 crew flying what appeared to have been a perfectly good bird that almost ended up in the grass on landing. On the second touch-and-go landing the student pilot found his Herk drifting to the side of the runway and his rudder refusing to respond to his frantic kicks at the rudder pedals. The IP took control and found that he, too, could just barely move the rudders.

"Reject!"

The crew stopped the aircraft on the runway using nosewheel steering. As they taxied to the ramp they found the rudder was still stuck.

In the chocks they found the culprit. Seems the right rudder cable had jumped off the lower rudder control pulley and jammed between the pulley and the mounting bracket. The cause of the cable excursion was traced to a broken pulley.

The "Eyes" Have It

The scanner eyed the obstructions closely as the heavy lift helicopter taxied into a "tight" marshalling area. He reported ample room existed to make it to the parking spot but, as the big bird rotored past a hangar, the main blades started slicing at a wall. By the time the rotor braked to a stop, all six main blades were badly damaged.

The scanner said later he was certain there had been sufficient blade-to-hangar clearance. Although he was scanning the tail at the time of contact, he had "cleared" the main blades. A subsequent medical examination revealed that one of his eyes had an impairment which could cause errors in depth perception.

If you're a scanner for towing or taxiing operations, do you trust your eyes? If you don't, it may be time for you to make an appointment at the med center. An eye examination now may prevent a lot of heartburn later.

Pilot Avoids Wake

The C-141 was just past the outer marker on an ILS final approach at 1,300 feet. The pilot spotted a C-5 on VFR downwind and reported the sighting to approach control. The C-5 turned in front of him, so the Starlifter pilot, deciding against knocking heads with the Galaxy's wake turbulence, made a 360-degree turn. Rolling out on final again, he completed a safe landing.

This is an example of a "heads up" crew not taking a chance with the danger trailing behind a jumbo. The pilot may have saved his own airplane by his timely 360.

Window Pain

The tanker was cruising smoothly at flight level 390. Suddenly the outer pane of the copilot's window cracked and the inner pane shattered. Cabin pressure held, but the copilot and navigator went on oxygen as a precaution against possible decompression. As the crew ran the cabin altitude up to 10,000 feet, the instructor pilot saw a piece of glass fly off the window. He descended to flight level 200.

After the aircraft landed, maintenance inspectors found that the window had been installed without the required glass tape on the inside seal and the sealant used during installation was nonstandard. The crack originated in the outer pane and progressed to the inner pane. No evidence of delamination or arcing was found. Inspectors suspect the incident was caused as a result of improper installation.

Panel Plunges

Maintenance men near the runway watched the C-141 lift off. It was still over the runway when a small panel fell off the aircraft. The troops quickly reported the sighting to base operations. When the base ops officer checked the runway, he found an 11- by 15-inch fiberglass oxygen converter access panel with three of the seven cam locks missing. No repairs had been performed on the aircraft in the vicinity of the panel, so the cause of its premature departure is unknown.

This incident is a reminder to scrutinize all visible panels closely for loose fasteners when pulling preflight inspections. An insecure screw caught on preflight may help prevent a complete breakdown later.

Cable Clips Antenna

Shortly after the C-141 broke ground a VHF radio failed. The pilot aborted the mission for another problem and cleared the runway as base ops personnel made a routine barrier cable inspection. Near one cable they found part of a VHF antenna mast. Maintenance matched this with a stub left on the belly of the aborting Starlifter. The pilot stated that he had landed beyond the cable, so he concluded that the antenna had been clipped by the cable on takeoff roll.

To use all available runway for takeoff often requires rolling over a barrier cable. With the gear struts inflated properly you've provided yourself all the antenna-to-cable clearance you can, so when you lose a radio on takeoff, consider asking the SOF to check for debris on the runway; you may have just gotten a clip job too.

Huey Takes a Dip

The helicopter crew was to make a night survey of a lake in hopes of establishing a suitable night over-water hoist training site. Several uneventful approaches and go-arounds were made, but as the UH-1N came to a hover on the last approach, its lower fuselage contacted the water. The pilot immediately pulled collective, climbed to a safe altitude, and flew to a suitable landing pad. There, the crew found damage to the landing light, UHF/DF antenna, cabin door, and a longeron. The bill for this unscheduled swim was $750.

Night over-water hoist work is a challenging mission, but one which helicopter crews must be prepared to execute. How long has it been since you've reviewed ARRSM 55-5 procedures for over-water work? Since the light helicopters may lack radar altimeters, keeping your feet out of the water may depend on how well you've planned the approach.

Qs

Still Another Nicad Fails

This time it was in an H-43. About 15 minutes after takeoff the crew heard a muffled explosion and noted fumes pouring from the left side of the battery case. The pilot made a quick return-to-base where he turned the bird over to maintenance.

At this writing the cause of the explosion has not been determined. Some of the previous failed nicads came apart at the seams because of overcharging, but this H-43's charging circuit checked out fine. The name of the game is watch your nickel cadmium battery closely. If you suspect it is getting too much charge, consider shutting it down — and, if it fails with or without a proper charge, fumes may give you cause for concern.

Over and Down

This one should get the attention of you so-called support pilots who zip across the country in your T-39s.

An instructor pilot and his student were flying local transition and had climbed to 20,000 feet to practice air work. The gear was lowered and the flaps set at 60 degrees in preparation for a power-off stall. The aircraft climbed another 1,000 feet as the airspeed bled off. As the Sabreliner slowed to 110 knots with the stick full aft and rudder and ailerons neutral, it started a left roll. The pilot applied right aileron and rudder, but nothing happened. As the T-39 continued banking left to 60 degrees, it suddenly snapped into an inverted position out of control. The instructor pilot quickly took the controls and decided the aircraft had entered an inverted left spin. He neutralized the controls with slight forward stick pressure and, as he extended the speed brakes, the rolling slowed and the controls again became effective. The recovery was completed after the Sabreliner had plunged 6,000 feet.

What Is My Airspeed?

While the C-141 cruised at flight level 350 the pilot's and copilot's airspeed indications began to vary. As the pilot complied with an ATC-directed climb to flight level 370, the copilot's mach indication passed through .825, activating the overspeed warning horn. The pilot decided to call it a day, so he pulled the overspeed warning horn circuit breaker, declared an emergency, and steered toward destination. He planned to request a chase plane to provide accurate airspeed reading for landing.

Drawing nearer to destination, the pilot discovered that with the airspeed indications he was using, a seven- to eight-degree pitchup attitude was required. Since he was obviously flying too slowly, as indicated by the excessive pitch attitude, he decided to set computed EPR from the performance section of the flight manual and disregard his airspeed indications. Once this EPR was set, the aircraft trimmed up properly. At about 13,000 feet, during descent, the airspeed indications returned to normal and remained accurate for landing.

This alert crew brought a Starlifter down safely by using available information — EPR in this case — as a crutch to overcome a system malfunction. Maintenance suspects ice in the pitot system caused the foul-up.

after deadline . . .

FROZEN FLIGHT CONTROLS -- In February a T-39 crew ran into problems when the Sabreliner's flight controls froze and would not move fore and aft.

The crew used power, trim, flaps, and speed brakes to control a descent to warmer temperatures. As they circled a diversion base, the controls freed themselves to a near-normal condition. A low, flat approach by the pilot set up an uneventful landing. Investigators determined that heavy precipitation somehow had accumulated in the lower fuselage after the cockpit water drain valve had been actuated and drained. Extremely low temperatures at altitude then froze the water and the flight controls.

Since the incident occurred, an interim safety supplement, T.O. 1T-39A-1SS-7, has been promulgated. If you T-39 pilots haven't yet seen the supplement, you might want to get a copy. Essentially, the supplement adds a step to the exterior inspection procedures in the flight manual; the addition ensures the valve is drained. Hopefully, it will prevent ice formation in the area of the flight control cables.

SAFETY AWARDS MANUAL -- Distribution of the newly revised AFR 900-26, Safety Awards, began in mid-March. If you haven't received a copy yet, now's the time to get your unit or function on distribution. Although most of the awards call for nominations to be made early in the calendar year, units may initiate nominations for USAF Flight Safety Certificates and USAF Well Done Awards whenever appropriate.

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Touch and Go

"THE STORY OF MY LIFE - TOO TALL TO BE A PILOT, TOO SHORT TO WORK ON THE C-5!"